

SURVEY METHODS

UNIFORM SURVEY PROCEDURE APPROVED BY THE LAKE STATES FOREST INSECT SURVEY COMMITTEE - 1956

LARCH SAWFLY DAMAGE APPRAISAL SURVEY

PURPOSE:

The larch sawfly, Pristiphora erichsonii (Htg.), is found throughout the tamarack type in the Lake States; however, the intensity of infestation varies from place to place. A standard method of appraising the damage is urgently needed so that all agencies can report infestations in a similar manner. The following procedure, in use by the Division of Forest Insect Research, Lake States Forest Experiment Station, is submitted as a means of fulfilling this objective. It can be used once to obtain data on stand condition and severity of defoliation or annually to follow population trends.

Tamarack mortality attributed to sawfly defoliation was observed for the first time in the present outbreak in Minnesota during 1954 and 1955. Landowners may wish to take some means of preventing defoliation and damage because much of the tamarack growing on the better sites will soon be commercially important. Also, it may be the only species that will reach merchantable size on a boggy site. If protection is considered it will be of prime importance to know how much defoliation, over how long a period, is required to cause death of the trees or predispose them to death by other factors. If the majority of the trees will survive, even though growth is reduced, it is doubtful whether protection measures will be necessary. The proposed procedure will give this type of information from year to year.

INSTRUCTIONS:

It will be possible to follow population trends and determine the factors causing, or leading up to, tree decadence by establishing permanent observation points throughout the tamarack areas.

Observation Point Establishment

1. All permanent observation points will be established in easily accessible tamarack stands, pole size or larger, that contain 70 percent or more tamarack and are at least 10 acres in extent. The landowner should be consulted to obtain permission to enter and to request that the stand will not be removed for a period of years. It would be advisable to locate points on public lands away from major highways whenever possible.
2. Each permanent observation point should be specifically located and described on the form attached so that it can be readily found. Each point should be adequately marked, so as to facilitate ease of locating, by a band of paint on a power or telephone pole or on nearby trees.
3. A line of 10 dominant trees, at least 1 chain apart and beginning 2 chains in from the road, will be permanently marked and used for sample trees. Each tree should be marked with a 2-inch band of paint at d. b. h., completely circling the tree; a number, 1 to 10, will be neatly painted above this band. A Valspar-type enamel, tangerine in color, has proved very satisfactory because it shows up well in the woods and has long-lasting qualities. Repainting is necessary when the numbers cannot be determined or in case a sample tree is windthrown and must be replaced by a nearby tree of similar size.
4. A square tenth-acre plot (1 chain on a side) will be established in the stand somewhere near the line of sample trees; possibly containing some of them. A line of trees, immediately adjacent to the edge of this plot, will be painted to delineate the plot boundaries; the paint marks should face the center of the plot. The primary purpose of

the plot will be to observe the development of tree decadence.

Field Observations

At each observation point two separate records will be made and marked on the attached form. One is a defoliation record and the second is a bark beetle record. These observations will be made after all feeding by the sawfly has ceased (approximately August 1).

1. Defoliation estimates - A defoliation estimate will be made for each of the 10 marked sample trees. The live crown is broken down into thirds visually, and a separate estimate to the nearest 5 percent is made for each crown level and then an average for the tree is obtained. When averaging, it must be realized that the upper one-third of the crown does not represent one-third of the total foliage. In making the estimates, because defoliation may vary in different quadrants of the crown, it is necessary to walk completely around the tree. Defoliation estimates will be recorded separately for each tree; the plot average will then be based on these 10 trees.

The d. b. h. for each of the 10 marked sample trees will be measured with a diameter tape to the nearest tenth of an inch and recorded on the form.

Total tree height for each sample tree is measured using an Abney level or hypsometer and recorded.

2. One-tenth-acre plot observations - Within the 1/10-acre plot all living trees in a 4-inch d. b. h. class or above will be counted and recorded by species. Only tamarack, spruce, and cedar should be considered.

Of these trees all showing recent bark beetle attack (present year) will be counted and recorded. If bark beetles are present, specimens should be sent in to the State Agency involved, or to the Lake States Forest Experiment Station, for determination.

By following these 1/10-acre plots over a period of years, some idea of tree decadence will be obtained. The recording of spruce and cedar as well as the tamarack should make possible the detection of tree decadence resulting from other factors besides the sawfly. An example would be excessive high water over a relatively long period. This should be reflected in all three tree species even though it may affect each in a different degree.

All field data should first be sent to the proper State agency; after being recorded the material can then be forwarded to the Lake States Forest Experiment Station for coordination. (L. C. Beckwith, Forest Service, U. S. D. A.).

LARCH SAWFLY DAMAGE APPRAISAL SURVEY

(1) Collecting point No. _____ (2) Approx. acreage sampled _____ (3) Date _____

(4) Location: T _____ R _____ S. _____ (5) Landowner _____

(6) Reporting agency _____ (7) Observers _____

(8) Stand condition:

Density: Poor Medium Good
Site : Dry Hummocky Wet

(9) Individual tree record

Tree No.	DBH	Ht.	Defoliation %
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Average			

(10) 1/10-acre plot Tamarack Spruce Cedar
(a) No. living trees above 4" DBH class _____
(b) No. trees containing bark beetles _____
(c) No. trees dead but not harboring bark beetles _____

(11) Larch casebearer: None Light Medium Heavy

(12) Remarks: _____

Instructions for Reporting Larch Sawfly Conditions

(1) For Reporting Agency only.

(2) - (7) - Self-explanatory.

(8) Underline one that best pertains to the stand.

Density: Forest Service Classification - Poor (100-224 trees/acre),
Medium (225-324 trees/acre), Good (325+ trees/acre).

Site : Dry and wet are self-explanatory; hummocky refers to a stand that has very irregular ground surface, the high areas are generally dry while the depressions are generally wet.

(9) Tree record: Tree No., DBH (in tenths of an inch), Ht. (in feet),
Defoliation percent (ocular estimate to the nearest 5 percent)

(10) 1/10-acre plot (1 ch. square).

(11) Larch casebearer - Record spring defoliation.

(12) Any additional information concerning the stand condition.

(RETURN TO STATE AGENCY IN CHARGE OF SURVEY.)